

Annual Surveillance Summary: Bacterial Infections in the Military Health System (MHS), 2016

The Hospital Associated Infections and Patient Safety Division of the EpiData Center (EDC) performs ongoing, comprehensive surveillance of bacterial infections considered urgent, serious, and concerning threats as recommended by the Centers for Disease Control and Prevention (CDC). This brief summarizes incidence rates (IRs), subpopulation impacts, prescription practices, and antimicrobial resistance for the following infections among Military Health System (MHS) beneficiaries for calendar year (CY) 2016:

- [Acinetobacter species](#)
- [Clostridium difficile](#)
- [Escherichia coli](#)
- [Klebsiella species](#)
- [Methicillin-resistant Staphylococcus aureus \(MRSA\)](#)
- [Pseudomonas aeruginosa](#)
- [Vancomycin-resistant Enterococci \(VRE\)](#)

Note: To review the annual report for each organism listed above, including a detailed presentation of results and important considerations, visit <http://www.med.navy.mil/sites/nmcphc/epi-data-center/pages/2016-surveillance-summaries.aspx>.

Summary of Results

The following tables summarize activity identified for the bacterial infections evaluated among MHS beneficiaries in CY 2016 as compared to weighted historic baseline data from CY 2013-2015.

Table 1. Incidence Rate (IR) and Trends of Selected Infections Among MHS Beneficiaries, CY 2016

Organism	2016 IR	Weighted Historic ^a IR 2013-2015	Two Standard Deviations: Weighted Historic IR	2016	
				Direction	Percent Change ^b
<i>Acinetobacter</i> spp. ^c	5.32	5.34	0.58	↓	0.37
<i>C. difficile</i>	22.0	18.9	4.7	↑	16.2
<i>E. coli</i>	676.7	656.2	137.6	↑	3.1
<i>Klebsiella</i> spp.	102.1	92.1	22.7	↑	10.8
MRSA	56.4	63.5	4.7	↓	11.2
<i>P. aeruginosa</i>	31.8	30.9	4.9	↑	2.8
VRE ^c	1.38	1.47	0.32	↓	6.21

Rates are presented as the rate per 100,000 persons per year.

A **green arrow** indicates an increasing percent change and a **blue arrow** indicates a decreasing percent change.

^a Historic IR reflects the weighted average of the three years prior to the analysis year.

^b This reflects the percent change from the weighted historic IR to the IR of the current analysis year.

^c Results are presented by two decimal places to account for low incidence rates.

Data Source: NMCPHC HL7-formatted CHCS microbiology and M2 databases.

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center, on 21 June 2017.



Table 2. Infection Impact: Demographics, Resistance, Prescription Practices, and Infection Setting within the MHS, CY 2016

Organism	Demographics Most Impacted: - Age (in Years) - Geographic Region - Beneficiary Type	Multidrug-Resistance IR ^a and Epi Trend		Prescription Practices and Antibigram: - Most Frequently Prescribed Drug - Percent Susceptibility	Proportion of Healthcare- (HA) and Community-Associated (CA) Cases
<i>Acinetobacter</i> spp. ^b	18-24 OCONUS Active Duty	0.22	↓	Trimethoprim/sulfamethoxazole 93.6%	HA – 34.6% CA – 65.4%
<i>C. difficile</i> ^c	65+ US West Family Members	--	--	Metronidazole 66.3%	HA – 16.6% CO – 80.3% Indeterminate – 3.1%
<i>E. coli</i>	18-24 OCONUS Active Duty	122.8	↑	Nitrofurantoin 97.9%	HA – 15.0% CA – 85.0%
<i>Klebsiella</i> spp.	45-64 US South Family Members	7.3	↑	Ciprofloxacin 97.3%	HA – 28.9% CA – 71.1%
MRSA ^d	18-24 OCONUS Active Duty	16.7	↑	Trimethoprim/sulfamethoxazole 96.6%	HA – 26.6% CA – 73.4%
<i>P. aeruginosa</i>	65+ OCONUS Retired	1.9	↑	Ciprofloxacin 88.6%	HA – 47.4% CA – 52.6%
VRE ^c	65+ US West Retired	--	--	Daptomycin 97.2%	HA – 87.0% CA – 13.0%

A **green arrow** indicates an increasing percent change and a **blue arrow** indicates a decreasing percent change.

^a Multidrug-resistance incidence rate (MDR IR). Rates are presented as the rate per 100,000 persons per year.

^b Rate is presented by two decimal places to account for low incidence rates among *Acinetobacter* species infections.

^c MDR IRs were not calculated for *C. difficile* or VRE infections.

^d For MRSA only, the MDR IR column depicts the percentage of MRSA infections with inducible clindamycin resistance within the MHS and not the MDR IR.

Data Source: NMCPHC HL7-formatted CHCS microbiology and M2 databases.

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center, on 21 June 2017.

Conclusion

Bacterial activity of interest in the MHS in 2016 exhibited expected trends and closely resembled activity in the general United States population as reported by the CDC and other public health agencies. No significant threat to mission readiness or population health was observed, and traditional treatment options remain viable. Continued adherence to infection control practices is recommended in the clinical, occupational, and deployed settings. Please refer to the complete suite of 2016 annual reports for important organism-specific considerations: <http://www.med.navy.mil/sites/nmcphc/epi-data-center/Pages/2016-surveillance-summaries.aspx>.

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